

**AMENDMENTS TO THE SPECIFICATION:**

Please amend the paragraph beginning at page 1, line 1, as follows:

~~TITLE OF THE INVENTION.~~

Please amend the paragraph beginning at page 1, line 5, as follows:

~~BACKGROUND OF THE INVENTION.~~

Please amend the paragraph beginning at page 1, line 6, as follows:

Technical Field of the Invention.

Please amend the paragraph beginning at page 1, line 7, as follows:

~~The present invention~~ Present exemplary non-limiting embodiments of the  
technology described herein relates to a line drawing image generating device, a  
storage medium, and a line drawing image generating method. More particularly,  
~~the present invention~~ exemplary non-limiting embodiments relates to a line  
drawing image generating device, a storage medium, and a line drawing image  
generating method for generating line drawing data based on original image data.

Please amend the paragraph beginning at page 1, line 14, as follows:

~~Description of the Background Art.~~

Please amend the paragraph beginning at page 2, line 6, as follows:

**FUJITA**

**Application No. 10/693,954**

**April 12, 2005**

Now, in an image used in animation (referred to as an animation ~~cell~~cell), an outline of a character is typically black (this black outline is referred to as an ink line), and patterns of the character's clothes and grasses in a background are not especially outlined in black (see FIG. 13). If a conventional outline extracting process is applied to the above image in which the outlines are partially thickened, outlines in a resultant line drawing vary widely in line width. However, a neighboring area of a pixel to be processed, which is referred to when a brightness or color difference is estimated, is extended in order to improve the continuity of the outline of the grasses in the background of the image shown in FIG. 13, for example, the outline of the character is unnecessarily thickened in a resultant line drawing as shown in FIG. 14. As a result, the image becomes artificial, which is a problem.

Please amend the paragraph beginning at page 2, line 22, as follows:

~~SUMMARY OF THE INVENTION.~~

Please amend the paragraph beginning at page 2, line 23, as follows:

Therefore, an ~~object-aspect of~~ exemplary non-limiting embodiments of the present invention-technology is to provide a line drawing image generating device, a program, and a method which generate a natural line drawing from an image such as an image used in animation, for example, in which outlines are partially thickened, by performing an outline extracting process.

**FUJITA**

**Application No. 10/693,954**

**April 12, 2005**

Please amend the paragraph beginning at page 3, line 3, as follows:

~~The present invention has the following features to attain the object mentioned above (n~~  
Notes in parentheses indicate exemplary elements which can be found in the embodiments to follow, though such notes are not intended to limit the scope of the invention).

Please amend the paragraph beginning at page 3, line 8, as follows:

~~The present invention~~One exemplary non-limiting embodiment is directed to a line drawing image generating device for generating line drawing data based on original image data (FIG. 13), comprising: ink line area detecting means (a CPU 36 executing step S22); neighboring area detecting means (the CPU 36 executing step S34); outline area detecting means (the CPU 36 executing step S35); line drawing data storing means for storing the line drawing data (84); and color data writing means (the CPU 36 executing steps S31 and S37). The ink line area detecting means detects an area (a pixel for which determination (YES) is made at step S22) whose brightness is smaller than a predetermined value (L) in an original image as an ink line area. The neighboring area detecting means detects a neighboring area (a pixel for which determination (YES) is made at step S34) of the ink line area, which surrounds the ink line area. The outline area detecting means detects an outline portion (a pixel for which determination (YES) is made at step S36) of an image as an outline area, with respect to an area (a pixel for which determination (NO) is made at step S34) other than the ink line area and

**FUJITA**

**Application No. 10/693,954**

**April 12, 2005**

the neighboring area in the original image. The color data writing means writes color data (black) to a storage area (a pixel for which determination (YES) is made at step S32 and a pixel for which determination (YES) is made at step S36) of the line drawing data storing means, which corresponds to the ink line area and the outline area, and writes different color data (white) to a storage area of the line drawing data storing means, which corresponds to an area other than the ink line area and the outline area.

Please amend the paragraph beginning at page 5, line 7, as follows:

A storage medium of ~~the present invention~~ an exemplary non-limiting embodiment is directed to a computer readable storage medium (18) storing a line drawing image generating program for generating line drawing data based on original image data (FIG. 13). The line drawing image generating program causes a computer (36) to execute: an ink line area detecting step (S22); a neighboring area detecting step (S34); an outline area detecting step (S35); and a color data writing step (S31, S37). The ink line area detecting step detects an area (a pixel for which determination (YES) is made at step S22) whose brightness is smaller than a predetermined value (L) in an original image as an ink line area. The neighboring area detecting step detects a neighboring area (a pixel for which determination (YES) is made at step S34) of the ink line area, which surrounds the ink line area. The outline area detecting step detects an outline portion (a pixel for which determination (YES) is made at step S36) of an image as an outline area

**FUJITA**

**Application No. 10/693,954**

**April 12, 2005**

with respect to an area (a pixel for which determination (NO) is made at step S34) other than the ink line area and the neighboring area in the original image. The color data writing step writes color data (black) to a storage area (a pixel for which determination (YES) is made at step S32 and a pixel for which determination (YES) is made at step S36) of line drawing data storing means (84) for storing the line drawing data, which corresponds to the ink line area and the outline area, and writes different color data (white) to a storage area of the line drawing data storing means (84), which corresponds to an area other than the ink line area and the outline area.

Please amend the paragraph beginning at page 6, line 8, as follows:

A line drawing image generating method of ~~the a present invention~~  
exemplary non-limiting embodiment generates line drawing data based on original image data (FIG. 13), comprising: an ink line area detecting step (S22); a neighboring area detecting step (S34); an outline area detecting step (S35); and a color data writing step (S31, S37). The ink line area detecting step detects an area (a pixel for which determination (YES) is made at step S22) whose brightness is smaller than a predetermined value (L) in an original image as an ink line area. The neighboring area detecting step detects a neighboring area (a pixel for which determination (YES) is made at step S34) of the ink line area, which surrounds the ink line area. The outline area detecting step detects an outline portion (a pixel for which determination (YES) is made at step S36) of an image as an outline area

**FUJITA**

**Application No. 10/693,954**

**April 12, 2005**

with respect to an area (a pixel for which determination (NO) is made at step S34) other than the ink line area and the neighboring area in the original image. The color data writing step writes colordata (black) to a storage area (a pixel for which determination (YES) is made at step S32 and a pixel for which determination (YES) is made at step S36) of line drawing data storing means (84) for storing the line drawing data, which corresponds to the ink line area and the outline area, and writes different color data (white) to a storage area of the line drawing data storing means (84), which corresponds to an area other than the ink line area and the outline area.

Please amend the paragraph beginning at page 7, line 7, as follows:

As such, ~~the present invention~~ exemplary non-limiting embodiments enables a natural line drawing to be generated from an image such as an image used in animation, for example, in which outlines are partially thickened, by performing an outline extracting process.

Please amend the paragraph beginning at page 7, line 11, as follows:

These and other ~~objects~~, features, aspects and advantages of the ~~present invention~~ exemplary non-limiting embodiments will become more apparent from the following detailed description of the ~~present invention~~ exemplary non-limiting embodiments when taken in conjunction with the accompanying drawings.

Please amend the paragraph beginning at page 7, line 17, as follows:

**FUJITA**

**Application No. 10/693,954**

**April 12, 2005**

FIG. 1 is an external view of a game system according to an exemplary non-limiting embodiment ~~of the present invention~~.

Please amend the paragraph beginning at page 8, line 9, as follows:

FIG. 10 is a flowchart showing a process of a variant of the exemplary non-limiting embodiment ~~of the present invention~~;

Please amend the paragraph beginning at page 8, line 22, as follows:

Hereinafter, a game system according to an exemplary non-limiting embodiment ~~of the present invention~~ will be described.

Please amend the paragraph beginning at page 8, line 24, as follows:

FIG. 1 is an external view of a game system according to the exemplary non-limiting embodiment ~~of the present invention~~, and FIG. 2 is a block diagram of the above game system. As shown in FIGS. 1 and 2, a game system 10 includes a main body 12, a DVD-ROM 18, an external memory card 30, a controller 22, a loudspeaker 34a, and a TV monitor 34. The DVD-ROM 18 and the external memory card 30 are removably mounted on and inserted into the main body 12, respectively. The controller 22 is connected to any one of a plurality of controller port connectors (in FIG. 1, four controller port connectors) of the main body 12, via a communication cable. The TV monitor 34 and the loudspeaker 34a are connected to the main body 12 by an AV cable, etc. Note that the main body 12

**FUJITA**

**Application No. 10/693,954**

**April 12, 2005**

may perform radio communications with the controller 22. Hereinafter, each component of the game system 10 will be described in details.

Please amend the paragraph beginning at page 14, line 4, as follows:

In FIG. 5, when the line drawing generating process is started, a process for detecting an ink line area (an area with a low brightness, such as an ink line of an animation ~~cell~~) in an original image is performed first based on the ink line detecting program 68. Specifically, the CPU 36 clears the ink line image buffer 82 (writes white to all pixels), and sets 1 to X and Y (coordinates for specifying a pixel to be processed), respectively, as an initial value, and sets 10 as a threshold value of a brightness used for determination of an ink line area (S21). Note that, in this embodiment, it is assumed that a brightness of each pixel of image data is defined within a range from 0 to 255. The threshold value L, which is not limited to 10, is set to an optimum value.

Please amend the paragraph beginning at page 21, line 14, as follows:

Note that, in the present embodiment, a brightness value of the pixel to be processed is used for determining whether or not the pixel to be processed is in the ink line area, but the present ~~inventions~~ exemplary non-limiting embodiments is ~~is~~ not limited thereto. For example, values of R, G, and B of the pixel to be processed may be used for performing the above determination.



Please amend the paragraph beginning at page 21, line 20, as follows:

Also, in the present embodiment, a predetermined process is performed by referring to an area of 3x3 pixels surrounding the pixel to be processed at steps S34 and S35, but the present ~~invention~~ exemplary non-limiting embodiments is not limited thereto. For example, an area of 5x5 pixels may be referred to. Also at step S52, a neighboring area is not limited to an area of 5x5 pixels.

Please amend the paragraph beginning at page 22, line 1, as follows:

Furthermore, in the present embodiment, it is assumed that either white or black is written to each pixel of the line drawing storing buffer, but the present ~~invention~~ exemplary non-limiting embodiments is not limited thereto. For example, red, blue, or brown may be written to each pixel of the line drawing storing buffer.

Please amend the paragraph beginning at page 22, line 6, as follows:

While the ~~invention~~ exemplary non-limiting embodiments has been described in detail, the foregoing description is in all aspects illustrative and not restrictive. It is understood that numerous other modifications and variations can be devised without departing from the scope of the invention.